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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,809	09/23/2005	Chan-Jac Lee	2025-05	3991
52706	7590	07/31/2007	EXAMINER	
IPLA P.A. 3580 WILSHIRE BLVD. 17TH FLOOR LOS ANGELES, CA 90010			KAMEN, NOAH P	
		ART UNIT	PAPER NUMBER	
		3747		
		MAIL DATE		DELIVERY MODE
		07/31/2007		PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/550,809	LEE ET AL.
	Examiner Noah Kamen	Art Unit 3747

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1 and 3-18 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
 5) Claim(s) 1 and 3 is/are allowed.
 6) Claim(s) 4,5,7-10,12-16 and 18 is/are rejected.
 7) Claim(s) 6,11 and 17 is/are objected to.
 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 9/23/05 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 5, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'319 in view of Reuchlein (4824149).

JP'319 discloses a PCCI including a water injector 31 and a spark plug 32. While the fuel injector is not shown, it is deemed to be in the intake so as to form the recited fuel/air mixture. Reuchlein disclose a generator located on a connecting rod that connects a piston 2 to a crankshaft 18, and while the generator is in a stirling engine; it would have been obvious to one of ordinary skill in the art to modify JP'319 to include a generator on the connecting rod in view of the teachings of Reuchlein so as to produce electricity.

Claims 8, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'319 in view of Karlsson (6234120). JP'319 discloses a PCCI including a water injector 31

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and a spark plug 32. While the fuel injector is not shown, it is deemed to be in the intake so as to form the recited fuel/air mixture.

Karlsson discloses oppositely acting pistons 9, each connected to crankshafts 4, 11 that are connected to each other by a belt 14. It would have been obvious to use the engine of JP'319 in an oppositely acting piston type engine as taught by Karlsson for having low vibration and high power output.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'319 in view of Karlsson as applied to claim 8 above, and further in view of Tomoiu (5237964). Tomoiu discloses a water injector 30 controlled by a temperature sensor 36, and to do likewise in JP'319 for optimal and accurate control would have been obvious to one of ordinary skill in the art.

• Claims 13,15,16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'319 in view of Reuchlein and Karlsson.

JP'319 discloses a PCCI including a water injector 31 and a spark plug 32. While the fuel injector is not shown, it is deemed to be in the intake so as to form the recited fuel/air mixture. Reuchlein disclose a generator located on a connecting rod that connects a piston 2 to a crankshaft 18, and while the generator is in a stirling engine; it would have been obvious to one of ordinary skill in the art to modify JP'319 to include a generator on the connecting rod in view of the teachings of Reuchlein so as to produce electricity. Karlsson discloses oppositely acting pistons 9, each connected to crankshafts 4, 11 that are connected to each other by a belt 14. It would have been obvious to use the engine of JP'319 in an oppositely acting piston type engine as taught by Karlsson for having low vibration and high power output.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'319 in view of Reuchlein and Karlsson as applied to claim 13 above, and further in view of Tomoiu

(5237964). Tomoiu discloses a water injector 30 controlled by a temperature sensor 36, and to do likewise in JP'319 for optimal and accurate control would have been obvious to one of ordinary skill in the art.

Response to Arguments

Applicant's arguments filed 7/16/07 have been fully considered but they are not persuasive. The applicant argues that all of the claims are allowable because they depend on newly amended claim 1, however this is clearly not the case. Independent claims 4, 8, and 13 are unchanged.

Allowable Subject Matter

Claims 6, 11, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1 and 3 are allowed.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

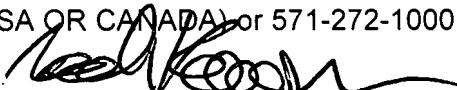
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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Noah Kamen whose telephone number is 571 272 4845. The examiner can normally be reached on M-Th 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Cronin can be reached on 571 272 4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Noah Kamen
Primary Examiner
Art Unit 3747

nk